IN THE CLAIMS

Please add claims 46-48.

Please amend claims 1, 18, and 26 as follows:

1. (Currently Amended) A source and destination resource (SDR) comprising:

source SDR resources, at a source device, multiplexing units of work produced by at least one source application instance (AI) into a serial unit of work stream having units of work in a defined order and transmitting the serial unit of work stream over a communication services/fabric, wherein the source SDR resources include at least one queue configured to hold transmitted but not acknowledged units of work and not yet transmitted units of work; and

destination SDR resources, at a destination device, receiving the serial unit of work stream, demultiplexing the serial unit of work stream into units of work provided to at least one destination AI, and providing a negative acknowledgement (NAK) for a unit of work received ahead of its defined order;

wherein the source SDR resources and the destination SDR resources together implement a reliable datagram service between the source device and the destination device which permits at least one ~~of AI to one AI,~~ one AI to many AIs, and many AIs to one AI reliable communication and is connectionless from the perspective of the AIs.

2. (Original) The SDR of claim 1 wherein the destination SDR resources provide a positive acknowledgement (ACK) for each unit of work which is successfully received and processed by the destination SDR resources.

3. (Original) The SDR of claim 1 wherein the destination SDR resources provide a cumulative positive acknowledgement (ACK) for a set of units of work that indicate that all units of work in the set of units of work up to and including a current unit of work have been successfully received and processed by the destination SDR resources.

4. (Original) The SDR of claim 1 wherein the source SDR resources respond to the NAK to retransmit all unacknowledged units of work.

5. (Original) The SDR of claim 1 wherein the source SDR resources respond to the NAK to selectively retransmit unacknowledged units of work.

6. (Original) The SDR of claim 1 wherein each unit of work in the serial unit of work stream transmitted from the source SDR resources includes a protocol header containing fields employed by the communication services/fabric to target the at least one destination AI.

7. (Original) The SDR of claim 6 wherein the protocol header includes a SDR sequence number field indicating the defined order of its corresponding unit of work.

8. (Original) The SDR of claim 7 wherein the destination SDR resources include an expected next sequence number value indicating an expected defined order corresponding to the next unit of work to be received.

9. (Original) The SDR of claim 8 wherein the SDR sequence number field value being less than the expected next sequence number value stored in the destination SDR resources indicates that the unit of work is a duplicate unit of work.

10. (Original) The SDR of claim 9 wherein the destination SDR resources silently drop the unit of work in response to the indication that the unit of work is a duplicate unit of work.

11. (Original) The SDR of claim 9 wherein the destination SDR resources drop the duplicate unit of work and provide a positive acknowledgement (ACK) indicating to the source SDR resources that the last unit of work was successfully received and processed by the destination SDR resources.

12. (Original) The SDR of claim 8 wherein if the SDR sequence number field value matches the expected next sequence number value stored in the destination SDR, then other protocol header fields are verified and a positive acknowledgement (ACK) is provided by the

destination SDR resources if the current unit of work is valid from the destination device's perspective and a NAK is provided by the destination SDR resources if the current unit of work is invalid from the destination device's perspective.

13. (Original) The SDR of claim 8 wherein the SDR sequence number field value being greater than the expected next sequence number value stored in the destination SDR resources indicates that the unit of work is received ahead of its defined order.

14. (Original) The SDR of claim 13 wherein the NAK provided by the destination SDR resources in response to the indication that the unit of work is received ahead of its defined order contains the expected next sequence number value in the SDR sequence number field of the protocol header of the NAK to indicate to the source SDR resources that an intermediate unit of work corresponding to the expected next sequence number value is missing.

15. (Original) The SDR of claim 14 wherein the source SDR resources respond to the NAK and retransmit all units of work having an assigned SDR sequence number value equal to or greater than the SDR sequence number value corresponding to the missing intermediate unit of work.

16. (Original) The SDR of claim 13 wherein the destination SDR resources drop the unit of work in response to the indication that the unit of work is received ahead of its defined order.

17. (Original) The SDR of claim 13 wherein the destination SDR resources verify other protocol header fields in response to the indication that the unit of work is received ahead of its defined order and the destination SDR resources temporarily store the unit of work if the other verification checks pass.

18. (Currently Amended) A data processing system comprising:

a source device having at least ~~two~~one source application instances (AIs) which produces units of work;

a destination device having at least ~~two~~one destination AI~~s~~ which consumes units of work;

communication services/fabric providing communication between the source device and the destination device ~~which permits one AI to one AI, one AI to many AIs, and many AIs to one AI reliable communication~~; and

a source and destination resource (SDR) implementing a reliable datagram service between the source device and the destination device which permits at least one of one AI to many AIs and many AIs to one AI reliable communication and is connectionless from the perspective of the AIs, the SDR including:

source SDR resources, at the source device, multiplexing units of work produced by at the least one source AI into a serial unit of work stream having units of work in a defined order and transmitting the serial unit of work stream over the communication services/fabric, wherein the source SDR resources include at least one queue configured to hold transmitted but not acknowledged units of work and not yet transmitted units of work; and

destination SDR resources, at the destination device, receiving the serial unit of work stream, demultiplexing the serial unit of work stream into units of work provided to the at least one destination AI, and providing a negative acknowledgement (NAK) for a unit of work received ahead of its defined order.

19. (Original) The data processing system of claim 18 wherein:

each unit of work in the serial unit of work stream transmitted from the source SDR resources includes a protocol header containing fields employed by the communication services/fabric to target the at least one destination AI;

the protocol header includes a SDR sequence number field indicating the defined order of its corresponding unit of work;

the destination SDR resources include an expected next sequence number value indicating an expected defined order corresponding to the next unit of work to be received; and

the SDR sequence number field value being greater than the expected next sequence number value stored in the destination SDR resources indicates that the unit of work is received ahead of its defined order.

20. (Original) The data processing system of claim 19 wherein the NAK provided by the destination SDR resources in response to the indication that the unit of work is received ahead of its defined order contains the expected next sequence number value in the SDR sequence number field of the protocol header of the NAK to indicate to the source SDR resources that an intermediate unit of work corresponding to the expected next sequence number value is missing.

21. (Original) The data processing system of claim 20 wherein the source SDR resources respond to the NAK and retransmit all units of work having an assigned SDR sequence number value equal to or greater than the SDR sequence number value corresponding to the missing intermediate unit of work.

22. (Original) The data processing system of claim 19 wherein the destination SDR resources drop the unit of work in response to the indication that the unit of work is received ahead of its defined order.

23. (Original) The data processing system of claim 19 wherein the destination SDR resources verify other protocol header fields in response to the indication that the unit of work is received ahead of its defined order and the destination SDR resources temporarily store the unit of work if the other verification checks pass.

24. (Original) The data processing system of claim 23 wherein the data processing system further comprises:

at least one middleware AI which performs a resynchronization operation to recover a missing intermediate unit of work corresponding to the expected next sequence number value if the other verification checks pass.

25. (Original) The data processing system of claim 18 wherein the source device also functions as a destination device and the destination device also functions as a source device.

26. (Currently Amended) A method of processing data comprising:

implementing a reliable datagram service between a source device and a destination device which permits at least one of one application instance (AI) to ~~one AI, one AI to~~ many AIs, and many AIs to one AI reliable communication ~~including~~ and is connectionless from the perspective of the AIs, wherein implementing the reliable datagram service includes:

multiplexing units of work produced by at least one source AI at the source device into a serial unit of work stream having units of work in a defined order;

holding, at the source device, not yet transmitted units of work;

transmitting the serial unit of work stream over a communication services/fabric;

holding, at the source device, transmitted but not acknowledged units of work;

receiving the serial unit of work stream at the destination device;

demultiplexing the serial unit of work stream into units of work provided to at least one destination AI at the destination device; and

providing a negative acknowledgement (NAK) for a unit of work received ahead of its defined order.

27. (Original) The method of claim 26 further comprising the step of:

providing a positive acknowledgement (ACK) for each unit of work which is successfully received and processed at the destination device.

28. (Original) The method of claim 26 further comprising the step of:

providing a cumulative positive acknowledgement (ACK) for a set of units of work that indicate that all units of work in the set of units of work up to and including a current unit of work have been successfully received and processed at the destination device.

29. (Original) The method of claim 26 further comprising the steps of:

receiving the NAK at the source device; and

retransmitting all unacknowledged units of work from the source device in response to the received NAK.

30. (Original) The method of claim 26 further comprising the steps of:

receiving the NAK at the source device; and

selectively retransmitting unacknowledged units of work from the source device in response to the received NAK.

31. (Original) The method of claim 26 further comprising the step of:

providing a protocol header in each unit of work in the serial unit of work stream, wherein the protocol header contains fields employed by the communication services/fabric to target the at least one destination AI.

32. (Original) The method of claim 31 wherein the protocol header includes a SDR sequence number field indicating the defined order of its corresponding unit of work.

33. (Original) The method of claim 32 further comprising the step of:

storing an expected next sequence number value indicating an expected defined order corresponding to the next unit of work to be received at the destination device.

34. (Original) The method of claim 33 further comprising the step of:

indicating that the unit of work is a duplicate unit of work based on the SDR sequence number field value being less than the expected next sequence number value stored in the destination SDR resources.

35. (Original) The method of claim 34 further comprising the step of:

silently dropping the unit of work in response to the indication that the unit of work is a duplicate unit of work.

36. (Original) The method of claim 34 further comprising the steps of:

dropping the duplicate unit of work; and

providing a positive acknowledgement (ACK) indicating to the source device that the last unit of work was successfully received and processed at the destination device.

37. (Original) The method of claim 33 further comprising the steps of:

verifying other protocol header fields if the SDR sequence number field value matches the expected next sequence number value stored in the destination SDR;

providing a positive acknowledgement (ACK) if the current unit of work is valid from the destination device's perspective; and

providing a NAK if the current unit of work is invalid from the destination device's perspective.

38. (Original) The method of claim 33 further comprising the step of:

indicating that the unit of work is received ahead of its defined order based on the SDR sequence number field value being greater than the stored expected next sequence number value.

39. (Original) The method of claim 38 further comprising the step of:

inserting the expected next sequence number value into the SDR sequence number field of the protocol header of the NAK provided in response to the indication that the unit of work is received ahead of its defined order to indicate to the source device that an intermediate unit of work corresponding to the expected next sequence number value is missing.

40. (Original) The method of claim 39 further comprising the steps of:

receiving the NAK at the source device; and

retransmitting, in response to the received NAK, all units of work having an assigned SDR sequence number value equal to or greater than the SDR sequence number value corresponding to the missing intermediate unit of work.

41. (Original) The method of claim 38 further comprising the step of:

dropping the unit of work in response to the indication that the unit of work is received ahead of its defined order.

42. (Original) The method of claim 38 further comprising the step of:

verifying other protocol header fields in response to the indication that the unit of work is received ahead of its defined order; and

temporarily storing the unit of work if the other verification checks pass.

43. (Original) The method of claim 42 further comprising the step of:

performing a resynchronization operation to recover a missing intermediate unit of work corresponding to the expected next sequence number value if the other verification checks pass.

44. (Original) The method of claim 26 further comprising the steps of:

producing the units of work with the at least one source application instance (AI) at the source device; and

consuming the units of work with the at least one destination AI at the destination device.

45. (Original) The method of claim 26 wherein the source device also functions as a destination device and the destination device also functions as a source device.

46. (New) The SDR of claim 1 wherein the reliable datagram service permits one AI to one AI reliable communication.

47. (New) The computer system of claim 18 wherein the reliable datagram service permits one AI to one AI reliable communication.

48. (New) The method of claim 26 wherein the reliable datagram service permits one AI to one AI reliable communication.